UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/774,822	02/09/2004	Bryan P. Dube	EH-10909(04-103)	9239

34704 7590 12/16/2005

BACHMAN & LAPOINTE, P.C.
900 CHAPEL STREET
SUITE 1201
NEW HAVEN, CT 06510

EXAMINER	
WHITE, DWAYNE J	

ART UNIT	PAPER NUMBER
3745	

DATE MAILED: 12/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/774,822	DUBE ET AL.	
	Examiner	Art Unit	
	Dwayne J. White	3745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 September 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *19,20,23 and 24* is/are allowed.

6)☒ Claim(s) *1,2,5,14,15,17,18,21,22,25 and 26* is/are rejected.

7)☒ Claim(s) *3,4,6-13 and 16* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *09 February 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Applicant's amendment filed 20 September 2005 has been fully considered. Claims 1-26 are pending. Applicant's arguments with respect to the claims have been noted however Applicant's amendment to the claims has prompted the Examiner to provide new grounds for rejection as detailed below.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., In re Berg, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); In re Goodman, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); In re Longi, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); In re Van Ornum, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); In re Vogel, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and In re Thorington, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

> Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1, 2, 5, 14 and 15 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as all being unpatentable over claim 1 of copending Application No. 10/774,989 in view of Merry (6,672,836). Although the conflicting claims are not identical, they are not patentably distinct from each other.

Copending application claim 1 discloses a turbine blade comprising: an airfoil having a root end and a tip end; at least one cooling passageway in said airfoil, said at least one cooling

passageway extending from the root end to the tip end and having a circular cross-section; a plurality of turbulation least one cooling passageway; promotion devices in said at said plurality of turbulation promotion devices comprising a plurality of pairs of aligned turbulation promotion devices; and each of said plurality of turbulation promotion devices in each of said pair being arcuate in shape and circumscribing an arc less than 180 degrees. Copending claim 1 is silent on having a P/e that varies along the span of the airfoil.

Merry teaches a turbine engine blade comprising a airfoil portion having a span; a plurality cooling passageway 7 in the airfoil portion extending from root 58 to tip 56; and a plurality of turbulators T disposed in the plurality of cooling passageway having a P/e that varies along the span (Column 9, lines 45-60). The P/e ratio is lower in the midspan region of the passageway that in an end region of the passageway. Since both the copending claim and Merry disclose cooling passageways have turbulation devices, it would have been obvious at the time the invention was made to one of ordinary skill in the art to modify the turbulation devices copending claim 1, with the teachings of Merry, by varying the P/e ratio has claimed in application claim 1 for the purpose of providing the proper amount of heat transfer across the blade.

This is a provisional obviousness-type double patenting rejection.

Claims 25 and 26 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as both being unpatentable over claim14 of copending Application No. 10/774,989 in view of Merry. Although the conflicting claims are not identical, they are not patentably distinct from each other.

Copending application claim 14 discloses turbine blade comprising: an airfoil having a root end and a tip end; at least one cooling passageway in said airfoil, said at least one cooling passageway extending from the root end to the tip end and having a circular cross-section; a plurality of turbulation least one cooling passageway; promotion devices in said at said plurality of turbulation promotion devices comprising a plurality of pairs of aligned turbulation promotion devices; and each of said plurality of turbulation promotion devices in each of said pair being arcuate in shape and circumscribing an arc less than 180 degrees; wherein each of said turbulation promotion devices has a surface which is at an angle in the range of from 30 degrees to 70 degrees with respect to an axis extending from said tip end to said root end. Co-pending claim 14 is silent on having a P/e that varies along the span of the airfoil.

Merry teaches a turbine engine blade comprising a airfoil portion having a span; a plurality cooling passageway 7 in the airfoil portion extending from root 58 to tip 56; and a plurality of turbulators T disposed in the plurality of cooling passageway having a P/e that varies along the span (Column 9, lines 45-60). The P/e ratio is lower in the midspan region of the passageway that in an end region of the passageway. Since both the copending claim and Merry disclose cooling passageways have turbulation devices, it would have been obvious at the time the invention was made to one of ordinary skill in the art to modify the turbulation devices copending claim 1, with the teachings of Merry, by varying the P/e ratio has claimed in application claim 1 for the purpose of providing the proper amount of heat transfer across the blade.

This is a provisional obviousness-type double patenting rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 2, 5, 14, 15 and 17-21 are rejected under 35 U.S.C. 103(a) as being obvious over Johnson et al. (6,416,283) in view of Merry (6,672,836). Johnson et al. disclose a turbine blade comprising: an airfoil having a root end and a tip end; at least on cooling passageway 16 extending from the root to the tip and having a circular cross section; a plurality of turbulation promotion devices 30 in the cooling passage way being arcuate in shape. The plurality of turbulation promotion devices includes a pair of spaced apart arcuately shaped trip strips. Johnson does not disclose the ratio of P/e from the trip strips.

Merry teaches a turbine engine blade comprising a airfoil portion having a span; a plurality cooling passageway 7 in the airfoil portion extending from root 58 to tip 56; and a plurality of turbulators T disposed in the plurality of cooling passageway having a P/e that varies along the span (Column 9, lines 45-60). The P/e ratio is lower in the midspan region of the passageway that in an end region of the passageway. Since both the Johnson et al. and Merry disclose cooling passageways have turbulation devices, it would have been obvious at the time the invention was made to one of ordinary skill in the art to modify the turbulation devices Johnson et al., with the teachings of Merry, by varying the P/e ratio has claimed in application claim 1 for the purpose of providing the proper amount of heat transfer across the blade.

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(l)(1) and § 706.02(l)(2).

Claim 22 is rejected under 35 U.S.C. 103(a) as being obvious over Johnson et al. in view of Merry in further view of Staub et al. (5,924,843). Johnson et al. in view of Merry discloses all of the claimed subject matter as stated above except the method of manufacturing.

Staub et al. teaches that a cooled turbine blade having turbulators can be manufactured using casting process (column 6, lines 7-12). Since both Johnson et al., Merry and Staub et al. disclose cooled turbine blades and it is well known that casting is used as a process for producing turbine blades, it would have been obvious at the time the invention was made to one of ordinary skill in the art to manufacture the turbine blade of Johnson et al., as modified by Merry, using a casting process as taught by Staub et al. for the purpose of producing the turbine blade.

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(l)(1) and § 706.02(l)(2).

CONCLUSION

Allowable Subject Matter

Claims 19, 20, 23 and 24 are allowed.

Claims 3, 4, 6-13 and 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Contact Information

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dwayne J. White whose telephone number is (571) 272-4825. The examiner can normally be reached on 7:00 am to 4 pm T-F and alternate Mondays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Look can be reached on (571) 272-4820. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Dwayne J White
Patent Examiner
Art Unit 3745

DJW

EDWARD K. LOOK
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3700

12/12/05